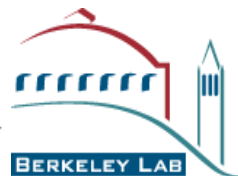




THE GLENN T. SEABORG CENTER
SCIENCE AND EDUCATION FOR HEAVY ELEMENTS AND THE ENVIRONMENT



Sue B. Clark

Westinghouse Distinguished Professor
Department of Chemistry, Washington State University
Pullman, WA 99164-4630

“The Behavior of Actinides in the Environment: Studies on the Partitioning of U and Pu to Contaminated Soils and Sediments”

Thursday, January 17, 2002
5PM-6PM
Bldg. 2-Room 100B

Hosts: Dr. Linfeng Rao & Professor Heino Nitsche

Sequential chemical extractions can be used to define the apparent solubilities, or “environmental availabilities” of contaminants such as the actinides [e.g., 1, 2, 3]. Environmental availability is correlated with the partitioning of contaminants to the variety of surfaces available in a given soil or sediment. The National Institute for Standards and Technology (NIST) has developed a proposed standard sequential extraction method for soils and sediments contaminated with plutonium and/or uranium [4, 5, 6]. We have used this method to define the environmental availability in contaminated materials collected from various DOE sites, including Savannah River (SRS), Rocky Flats (RF), and the Idaho National Engineering and Environmental Laboratory (INEEL). In addition, we are using fission track analysis in conjunction with partitioning information obtained from sequential extractions to study the individual contaminated particles and the chemistry controlling the partitioning. This work will be reviewed and recent experiments demonstrating the utility of fission track analysis for *in-situ* analyses will be presented.

-
1. Clark, S. B.; Johnson, W. H.; Malek, M. A.; Serkiz, S. M.; Hinton, T. G. *Radiochim. Acta* **1996** 74, 173.
 2. Loyland, S. M.; LaMont, S. P.; Herbison, S. E.; Clark, S. B. *Radiochim. Acta* **2000** 88, 793-798.
 3. Loyland Asbury, S. M.; LaMont, S. P.; Clark, S. B. *Environ. Sci. Technol.* **2001** 35, 2295-2300.
 4. G. A. Smith, Fractionation of Actinide Elements in Sediments Via an Optimized Protocol for Sequential Chemical Extractions, Masters Thesis, Florida State University, 1998
 5. Schultz, M. K.; Burnett, W. C.; Inn, K. G. W. *J. Environ. Radioactivity* **1998** 40(2), 155-174.
 6. Kurosaki, H.; Loyland Asbury, S. M.; Clark, S. B.; *Environ. Sci. Technol.*, submitted.

For more information please contact the Center at 486-7535
--